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A47K 17/00

(52) UK CL (Edition R)

E1C C36X1

(56) Documents Cited

GB 2323859 A GB 2111549 A GB 1339675 A
GB 1291292 A

(58) Field of Search

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(54) Abstract Title

Biodegradable lining for toilet pan

(57) A biodegradable lining (9) when used for keeping the valve mechanism (7) clean of a toilet of the kind having a reservoir (5) for flushing liquid of a limited capacity and having a reservoir (3) for the waste of a limited capacity, and having a bowl with a valve mechanism for opening and closing the connection between the bowl and the waste reservoir, said lining (9) having sufficient dimensions to cover the valve mechanism and having sufficient strength to withstand the influences of the contents of the bowl and to withstand the flushing of the bowl, the article is preferably made of toilet paper of an average composition and with an average strength and capability to withstand the conditions prevailing at the bottom of the toilet bowl of the kind described. The lining is preferably fluted.

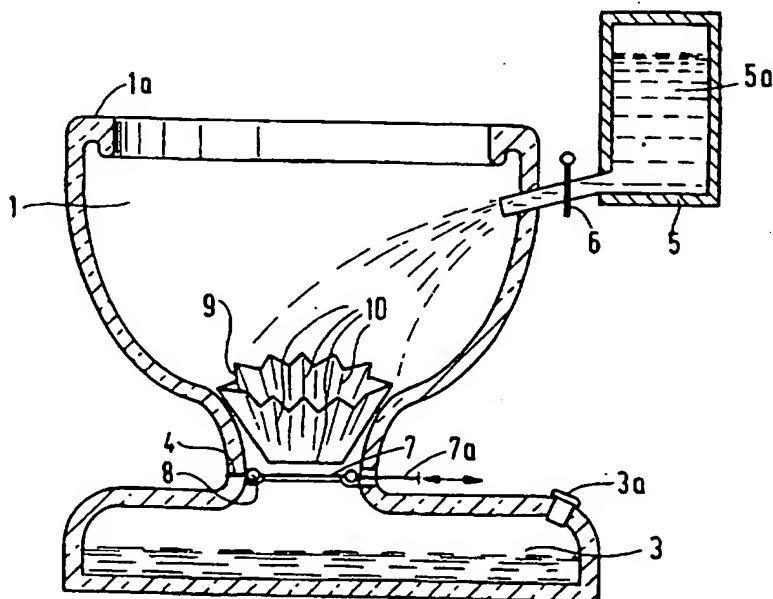


FIG. 1

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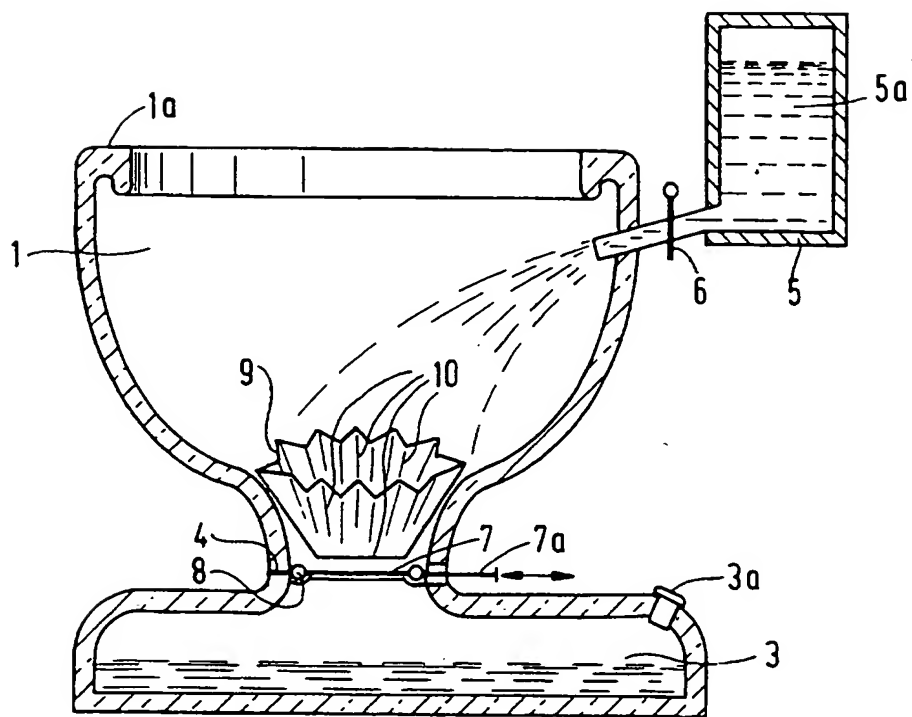


FIG. 1

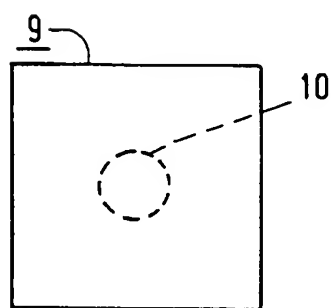


FIG. 2A

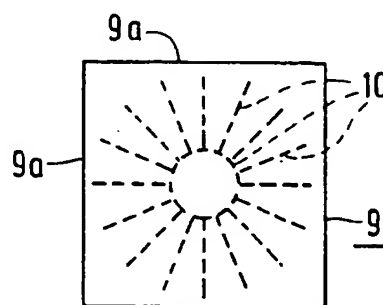


FIG. 2B

Title: Article for keeping the valve mechanism of a toilet clean.

The invention relates to an article for keeping the
5 valve mechanism of a toilet clean.

Conventional toilets are well known and are connected to a sewerage system via a syphon trap. In order to keep the bowl clean during use patent publications GB-B-1339675 and GB-A-2111549 disclose large sheets of paper, which are used
10 to cover the whole area of the bowl. The toilet and the syphon trap are however of such dimensions, that during use the contents and large sheets of paper can be flushed easily with liquid contained in a large reservoir connected to the mains water supply towards the sewerage system without
15 obstructing the toilet.

Another type of toilet is used in campers, caravans, planes, boats, mobile homes etc. and has a reservoir for flushing liquid of limited capacity and a reservoir for the waste of limited capacity, whereby the connection between the
20 bowl of the toilet and the waste reservoir incorporates a valve mechanism for opening and closing the connection between the bowl and the waste reservoir.

During use of such toilets the contents or waste are not flushed away into a sewerage system but collected in the
25 waste reservoir. For hygienic purposes the valve mechanism between the bowl and the waste reservoir needs to provide an odourless seal between the bowl and the waste reservoir. However, during use the valve mechanism becomes contaminated, resulting in a less tight seal of the waste reservoir.
30 Moreover due to the restricted storage capacity of the waste reservoir, such for example "porta potti", these toilets operate with small amounts of flushing liquid and the toilets will become obstructed when the above mentioned large sheets of paper are used.

35 The invention aims to overcome these drawbacks by providing an article for keeping the valve mechanism clean of a toilet of the kind having a reservoir for flushing liquid of a limited capacity and having a reservoir for the waste of

a limited capacity, and having a bowl with a valve mechanism for opening and closing the connection between the bowl and the waste reservoir, said article being bio-degradable, having sufficient dimensions to cover the valve mechanism and
 5 having sufficient strength to withstand the influences of the contents of the bowl and to withstand the flushing of the bowl, the article is preferably made of toilet paper of an average composition and with an average strength and capability to withstand the conditions prevailing at the
 10 bottom of the toilet bowl of the kind described.

The article according to the invention collects during use all contents and ensures, that during/after flushing all contents are drained directly into the waste reservoir. No contamination of the valve mechanism can occur and an
 15 odourless and more-hygienic toilet is maintained.

Preferably the article according to the invention has a fluted construction, enabling an exact positioning and a self centering of the article just above the connection between the bowl and the waste reservoir. From GB patent no. 1339675
 20 there is known a cup shaped device used in the outlet of the bowl of a normal toilet. This device however has a very special composition and strength, is not bio-degradable and could not be flushed away with a very limited amount of flushing liquid.

25 Embodiments of the article according to the invention are characterised in that the fluting forms a circle near the centre of the article or is directed from the centre of the article towards its outer edges, so that the article is self centering even when the outlet of the bowl is excentric.

30 In order to withstand the conditions prevailing at the bottom of the toilet bowl during use, the article has according to the invention a thickness, greater than that of ordinary toiletpaper, preferably two or three times the thickness of ordinary toilet paper. The composition of the
 35 article according to the invention can be the same as that of various types of toilet paper on the market as long as those are bio-degradable.

The invention relates also to a dispenser containing the

article according to one of the preceeding claims.

The invention will be explained in more detail hereafter with reference to a drawing, which shows:

5 Figure 1, disclosing a toilet of the known kind, incorporating an embodiment of an article according to the invention;

Figures 2a and 2b, showing another embodiments of the article according to the invention.

10

Figure 1 shows a schematical view of a toilet, which is used in campers, caravans, planes, boats, mobil homes etc. etc. Such toilets comprise a bowl 1 with a toilet seat 1a and a reservoir 5. The bowl 1 is connected to a waste
15 reservoir 3 via a narrow discharge connection 4. The bowl is separated from the waste reservoir 3 by means of a valve mechanism 7, which is capable of opening and closing the discharge connection 4. The valve mechanism can be operated via suitable mea... like a handle 7a. The valve 7 can be
20 collapsed downwards (e.g. against the force of a spring) or be displaced away in a horizontal plane thereby opening the connection 4.

After use of the toilet as described, valve mechanism 7 and valve 6 are opened, whereby the certain amount of liquid
25 5a contained in reservoir 5 enters bowl 1 and flushes the contents through the discharge connection 4 into the waste reservoir 3. After use valve mechanism 7 and 6 are closed and whenever necessary reservoir 5 can be refilled with flushing liquid 5a. The reservoir 5 can be opened and closed by
30 suitable means, like a handle 6 operating a valve or by means of a pump (not shown).

The waste reservoir 3 has a limited storage. Normally the connection 4 is constructed as a detachable connection between the bowl 1 and the reservoir 3. The reservoir 3 and
35 the bowl 1 can be disconnected from each other enabling the waste reservoir to be emptied into a sewerage system via the discharge opening 3a.

For hygienic purposes the valve 7 and/or the discharge

pipe 4 are provided with seals such as rubber O-rings, in order to establish an odourless seal between the bowl 1 and the waste reservoir 3. The O-ring can also be constructed as an U-ring, which U-ring can be compressed, ensuring a tight seal between the connection 4 and the valve 7

However, the discharge connection 4, the valve 7 and the O-ring 8 will become contaminated during use, resulting in a less tight seal between the valve 7, the O-ring 8 and the connection 4. In order to prevent contamination in this area of the toilet and a reduced sealing capability of the valve mechanism 7 an article according to the invention is placed in the discharge connection 4, just above the valve mechanism 7. The article 9 is made of toiletpaper of an average composition and can have a fluted construction, e.g. provided with several bending and/or folding lines 10. These folding lines 10 make it possible to fold the article 9 in a cupshaped manner. The folding lines 10 also enable an exact positioning of the cupshaped article 9 in the connection 4 between the bowl 1 and the waste reservoir 3.

The cupshaped article 9 according to the invention collects during use all or most of the contents and ensures that after flushing all contents are drained directly into the waste reservoir 3. The presence of an article 9 according to the invention placed in the connection 4 between the bowl 1 and waste reservoir 3 prevents contamination of the connection 4 and the valve mechanism 7 and the O-ring 8 and ensures a clean and tight seal between the connection 4 and the valve mechanism 7.

An odourless and more hygienic toilet is obtained. Moreover the use of such article surprisingly provides another advantage: since the contents are (mostly) collected in the cupshaped article 9, a less amount of liquid 5a can be used for flushing the toilet.

Figures 2a and 2b show two embodiments of an article incorporating the present invention. The article 9 is preferably made of toiletpaper of an average composition and with an average strength. Preferably the article is capable of withstanding the conditions, which occur near the

connection 4 of the toilet. This means, that the article 9 is strong enough to receive and hold the contents and that it will not tear apart during flushing. More specifically, the article has a thickness greater than that of ordinary toilet paper, preferably two or three times the thickness of ordinary toilet paper.

Preferably the article 9 is made of bio-degradable material and it will decompose within a short period of time. This limits the possibility of choking the sewerage system after emptying the waste reservoir 3. Also it is much easier to empty the reservoir 3 through the outlet 3a. Less toilet paper has to be used to clean the bowl after use. So there will be less debris of toilet paper and virtually no debris of the article 9. Therefore the outlet 3a of the reservoir 3 will not choke (partially) when emptying the reservoir, which otherwise causes a very annoying splashing, very well known to people using the "porta potti" (trademark of Thetford).

As shown in figure 2a the article has a fluted construction, whereby the fluting 10 forms an inner circle near the centre of the article 9. Another embodiment is shown in figure 2b. This embodiment has also a fluted construction, e.g. provided with several bending and/or folding lines 10. The fluting is formed as a circle, but consists also of a number of folding lines 10, which are directed from the centre of the article towards its outer edges 9a. After folding and shaping the article 9 according to its embodiment, shown in figure 2b, a harmonica-folded cupshaped article 9 is obtained. After positioning this cupshaped article 9 within the connection 4 between the bowl 1 and the waste reservoir 3, the article 9 does not close the connection 4 completely. Due to its harmonica-like shape multiple passages are created between the article 9 and the wall of connection 4, permitting the passage of liquid, whereby the article 9 and its contents easily slide away (on a layer of water) into the reservoir.

It will be apparent that the invention is not limited to the illustrated embodiments and that many variants and combinations of variants are possible within the framework of

the invention, which are all considered to fall within the scope of the invention. The article 9 may consist of one sheet of toiletpaper, it can also be constructed from different sheets of toiletpaper, each of different sizes and 5 shapes. The bending and/or folding lines 10 are formed at the connection lines between these different pieces of toiletpaper.

C L A I M S

1. Article for keeping the valve mechanism clean of a toilet of the kind having a reservoir for flushing liquid of a limited capacity and having a reservoir for the waste of a limited capacity, and having a bowl with a valve mechanism for opening and closing the connection between the bowl and the waste reservoir, said article being bio-degradable, having sufficient dimensions to cover the valve mechanism and having sufficient strength to withstand the influences of the contents of the bowl and to withstand the flushing of the bowl, the article is preferably made of toilet paper of an average composition and with an average strength and capability to withstand the conditions prevailing at the bottom of the toilet bowl of the kind described.

2. Article according to claim 1, characterised in that the sheet of toilet paper has a fluted construction, enabling an exact positioning of the article just above the connection between the bowl and the waste reservoir.

3. Article according to claim 2, characterised in that the fluting forms a circle near the centre of the article.

4. Article according to claim 2 or 3, characterised in that the fluting is directed from the centre of the article towards its outer edges.

5. Article according to one of the preceeding claims, characterised in that, the article has a thickness greater than that of ordinary toilet paper, preferably two or three times the thickness of ordinary toilet paper.

6. Dispenser containing the article according to one of the preceeding claims.

7. Toilet provided with the article according to one of the claims 1 - 5.

8. Method for keeping toilets clean of the kind described involving the use of the article according to one of the claims 1 - 5.



Application No: GB 9911300.3
Claims searched: 1-8

Examiner: D. Haworth
Date of search: 23 July 1999

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.Q): E1C (C36X1)

Int Cl (Ed.6): A47K 17/00

Other:

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2323859 A (Druce)	1,5,7 & 8
X	GB 2111549 A (Robinson)	1,5,7 & 8
X	GB 1339675 A (Henderson)	1,5,7 & 8
X	GB 1291292 A (Persichetti)	1,5,7 & 8

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.